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Psychological Empowerment in Breast Cancer Survivors: Posttraumatic Growth and Related Factors

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ABSTRACT

Introduction: Diagnosis and treatment of breast cancer is traumatic for both patients and their relatives. It is crucial to understand the factors that enhance the psychological resilience of breast cancer survivors. This study aims to investigate posttraumatic growth following breast cancer and its relationship with psychiatric disorders, social support, and stigma.

Methods: The study included 100 female breast cancer patients and 100 relatives. Patients underwent a DSM-5-based structured psychiatric interview and were assessed with the Posttraumatic Growth Inventory (PTGI), the Hospital Anxiety-Depression Scale (HADS), the Cancer Patient Perceived Social Support Scale (CPPSSS), and Cancer-related Attitudes Measurement Questionnaire (CRAMQ)-patient version. The patient's relatives were administered the PTGI, HADS, and CRAMQ-community versions.

Results: Psychiatric disorders were diagnosed in 40% of individuals with breast cancer, most commonly major depressive disorder (22%). Posttraumatic growth demonstrated a negative correlation with age and a positive association with being employed. The presence of psychiatric disorders and elevated anxiety levels are associated with reduced personal growth. Perceived emotional/confidence social support were associated with increased growth. A subscale of stigma 'impossibility of recovery' , led to a positive shift in life philosophy and interpersonal relationships. Additionally, both patients' age and the level of growth in their relatives were found to predict posttraumatic growth in the patients (B=-0.499, p=0.021; B=0.211, p=0.044, logistic regression).

Conclusion: Posttraumatic growth is negatively associated with age and the presence of a psychiatric disorder, and positively associated with employment and social support. Additionally, relatives' posttraumatic growth and patients' age predict posttraumatic growth in patients. Stigmatising the perception of "impossibility of recovery" is associated with positive psychological change, possibly reflecting a more traumatic perception of the cancer diagnosis, a reduction in denial, and increased acceptance of the illness. This acceptance of mortality may lead to deeper personal transformation for a more meaningful life and improved interpersonal relationships.

Keywords: Anxiety, breast cancer, depression, posttraumatic growth, social support, social stigma

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INTRODUCTION

Trauma is defined as a severe threat physically or to the integrity of life experienced, witnessed, or which has occurred to a loved one (1). Positive psychological changes that develop as a result of struggling with extremely difficult life events are conceptualised as post-traumatic growth. This concept can be summarised as a greater appreciation of life and re-evaluating the past, developing closer relationships, and being aware of one's own strength and new possibilities in life (2,3). Experiencing trauma does not always lead to posttraumatic growth. Traumatic experiences which cannot be overcome are generally a great source of stress without the opportunity for development (4). Personal factors such as optimism

Highlights

- **Increased anxiety and older age negatively influence post-traumatic growth.**
- **Employment and perceived emotional support enhance post-traumatic growth.**
- **Support of social functioning enables post-traumatic growth.**

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and resilience, self-confidence, coping strategies that are used, and the perception of threat associated with the trauma agent, environmental factors such as social support and financial resources, disease-related factors and stigmatisation can affect the development of growth after trauma (3,5).

Receiving a diagnosis of cancer is a significant traumatic experience for both the patient and their relatives. The fact that cancer is a reminder of death, progresses slowly and silently, the aetiology is not fully known, is difficult to control, there are uncertainties related to treatment results, and stigma, leading to the disease being experienced as a traumatic event (6). The cancer diagnosis is not a single trauma but is a process that includes many difficulties because of the loss of a healthy self, exposure to difficult treatments and sometimes the risk of recurrence after treatment. The diagnosis and treatment of breast cancer can lead to various psychological challenges, including anxiety, depression, anger, uncertainty about the future, hopelessness, diminished interest in daily activities, fear of relapse, fear of separation from loved ones, reduced self-confidence, body image distortion, sexual difficulties, concerns about not being loved or cared for, and fear of death. Together with the loss of health, the belief that wellness, integrity, and control are strength in themselves is destroyed (7).

The most common psychiatric symptoms after breast cancer are depressive and anxiety symptoms and the most common diagnosis is depressive disorder. Mental health deterioration negatively affects motivation and treatment adherence, increases the risk of suicide, reduces quality of life, and adversely impacts recovery from physical illness. These symptoms show variability according to the disease stage, the time since diagnosis, and different treatment processes such as surgery, chemotherapy, radiotherapy, and immunotherapy (8). However, the disease experience can allow the development of better attitudes towards oneself, others, the future, and life (9).

Studies on positive behavioral patterns that develop after health loss, such as post-traumatic growth in breast cancer, are increasing.

Breast cancer is one of the most extensively studied cancers regarding its mental and psychosocial consequences due to its prevalence, its impact on a body part symbolic of femininity and sexuality, and its high survival rates. The diagnosis of cancer can have negative psychosocial consequences, as well as a process that increases the psychological resilience of the individual and/or leads to posttraumatic growth. Posttraumatic growth and related factors have been extensively studied. In a follow-up study, it was reported that posttraumatic growth could develop in the early stage after a diagnosis, could develop more easily in areas of personal strength and relationships with others. There was a negative relationship between psychological stress and growth, and as time passed there was seen to be an increase in growth and a decrease in stress (10). It has also been reported that growth is seen more at younger ages, spirituality increases growth, depressive and anxiety symptoms have a positive effect on growth but are not predictive, and positive coping methods increase posttraumatic growth and this relationship is weakened over time (11,12). Posttraumatic growth is affected by personal characteristics, disease-related factors, social support, spirituality/religion, physical activity, socioeconomic status, the presence of additional physical disease, psychosocial stress, and stigma (13,14). The relationship between growth after trauma and the psychological sense of comfort or stress is an area of inconsistent and paradoxical results. Growth is just being without anxiety, and being happy or feeling well do not have the same meaning. There are studies in the literature which have reported that growth after trauma can be affected positively or negatively by psychiatric symptoms in breast cancer (9,15,16).

Another factor contributing to posttraumatic growth is social support. Individuals who have a supportive partner, well-functioning family, healthy family relationships, high perceived social support from family and friends, demonstrate increased posttraumatic growth. Social support facilitates the self-expression of traumatised individuals, alleviates emotional stress, enhances positive ruminations, and fosters the development of effective coping mechanisms. It is established that the emotional and cognitive coping styles of patients and their relatives influence each other (2,17). However, it remains unclear how relatives are affected in terms of posttraumatic growth and how this is reflected in the patients themselves.

The aim of this study was to investigate the relationship between posttraumatic growth in breast cancer and psychiatric symptoms, stigma, and social support. The data obtained will be of guidance in being able to manage the crisis created by being faced with this disease.

METHODS

Study Design and Participant

This study includes individuals who were admitted to the oncology clinic of our hospital between June 2018 and December 2018 and who had been diagnosed with breast cancer for at least six months. The study was completed with 100 breast cancer patients aged between18–65. None of the participants referred to us by the oncology clinic were excluded. A relative was defined as someone who assisted patients throughout their diagnosis and treatment, accompanied them for transportation to the hospital, and provided support at home. A relative of each patient who was aged >18 years had no diagnosis of cancer was included in this study (n: 100). The study exclusion criteria were chronic neurological disease (e.g., epilepsy, cerebrovascular disease, Parkinson's disease), mental retardation, or severe mental illness (e.g., schizophrenia, bipolar disorder, schizoaffective disorder). None of the patients interviewed or their relatives were excluded from the study.

Approval for the study was granted by the Pamukkale University Ethics Committee (60116787-020/25167, 10.04.2018).

Measures

All the participants were examined by a psychiatrist and psychiatric disorders were evaluated according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5). The Post-traumatic Growth Inventory (PTGI), Hospital Anxiety & Depression Scale (HADS), Cancer Patient Perceived Social Support Scale (CPPSSS), and Cancer-related Attitudes Measurement Questionnaire (CRAMQ) - patient version were applied to the patients. The patient's relatives were administered the PTGI, HADS, and CRAMQ - community versions.

Hospital Anxiety and Depression Scale

This scale was developed to measure levels of depression and anxiety, especially in individuals with physical disease (18). It consists of 14 items with 4-point Likert-type responses. Even-numbered items measure depression and odd-numbered items measure anxiety. The cutoff values have been determined as 8 points for depression and 11 points for anxiety. Reliability and validity studies of the scale in Turkish have been performed (19).

Cancer-Related Attitudes Measurement Questionnaire - Patient Version

This scale was developed to measure disease-related stigmatisation directed at cancer patients (20). Reliability and validity studies of the scale in Turkish have been performed (21). The scale comprises 12 items in 3 subscales of impossibility of recovery, labelling of cancer patients,

and experiencing social discrimination. A median score of ≥2.5 indicates negative attitudes related to cancer.

Cancer-Related Attitudes Measurement Questionnaire - Community Version

This scale was developed to measure the societal attitude to cancer patients (20). Reliability and validity studies of the scale in Turkish have been performed (22). The scale comprises 12 items in 3 subscales of impossibility of recovery, discrimination, and revealing/spreading the cancer diagnosis. A median score of ≥2.5 indicates negative attitudes related to cancer.

Cancer Patient Perceived Social Support Scale

This scale was developed to measure the perceived social support of cancer patients and the form of that social support. Responses are given as 5-point Likert type grades, with higher points indicating a higher level of perceived social support. Factor analysis was applied to determine the structural validity of the scale, and three factors were determined: confidence support, emotional support, and information support (23).

Posttraumatic Growth Inventory

This scale was developed by Tedeschi and Calhoun (2). The original form consists of 21 items scored from 0 (I have not experienced this change) to 5 (I have experienced this change at a high rate). The maximum points range from 0 to105 with higher points showing greater growth after trauma. The scale has 5 subscales of relationships with others, new opportunities, personal strength, spiritual change, and appreciation of life (2). In this study, the Turkish form was used, for which Kağan et al. conducted validity and reliability studies. Unlike the original scale, the Turkish form has 3 subscales of change in self-perception, change in life philosophy, and change in relationships with others (24).

Statistical Analyses

Data obtained in the study were analysed statistically using IBM Statistical Package for Social Sciences (SPSS) program for Windows version 22.0 software. In the comparisons of categorical data between groups, the Pearson Chi-square test was used. Conformity of continuous variables to normal distribution was assessed with the Kolmogorov-Smirnov test. In the comparisons of two groups, the Student's t-test was applied to data showing normal distribution and the Mann Whitney U-test to data not showing normal distribution. In the comparisons of the three groups, One-Way Variance Analysis (ANOVA) was applied to continuous variables with normal distribution and the Kruskal Wallis test was used when distribution was not normal. In the examination of the relationships between continuous variables, Spearman Correlation analysis was applied. The factors related to growth after trauma were examined with multiple regression analysis. The analyses were made in a 95% confidence interval. A value of $p<0.05$ was accepted as statistically significant.

RESULTS

Sample Characteristics and Scales

Of the 100 patients evaluated, 79 were married, and 60 were not employed, of which 18 had left work because of the disease. The 100 patient relatives comprised 72 males and 28 females, and the relationship was determined as spouse (n: 60), child (n: 20), sibling (n: 8), mother (n: 3), father (n: 1) and other (n: 8). The majority of the patient's relatives were university graduates (n: 30) or educated to high school level (n: 28). The mean time since receiving the cancer diagnosis was determined as 58.53±49.70 months. Treatments applied to the patients were determined as mastectomy in 95%, radiotherapy and chemotherapy in 44%, and breast reconstructive surgery in 10%.

Psychiatric disorders were determined in 40% of the patients, as major depressive disorder (MDD) in 22%, adjustment disorder in 10%, anxiety disorder in 7% and conversion disorder in 1%. There was a history of psychiatric treatment before the cancer diagnosis in 27% of the patients. MDD was determined in 7%, and anxiety disorder in 8% in the patient's relatives. The sociodemographic data and measures are shown in Table 1.

Factors Related to Posttraumatic Growth

The correlations between the PTGI and age, CPPSSS, and the PTGI score of the patient relatives are shown in Table 2. Patients with a psychiatric disorder were determined to have lower points in the change in self-perception subscale of the PTGI than those without the disorder (27.92±10.93 vs. 32.05±10.02, p=0.032). Compared to those who were not employed or had left work, patients who were working were seen to

Table 1. Scale scores of the participants

Scales		Patients with breast cancer (n: 100) mean ± SS	Relatives of patients (n: 100) mean ± SS
Age		49.17±9.88	44.87±15.19
Education year		8.76±4.84	10.49±4.36
Gender	Female	100	28
	Male	0	72
Working status	Employed	22	51
	Unemployed	60	46
	Quitted	18	3
HADS	HADS-anxiety	6.96±4.77	5.99±4.02
	HADS-depression	5.65±4.93	5.34±4.57
	Total	12.61±9.09	11.33±7.92
PTGI	Change in self-perception	30.40±10.54	29.88±10.19
	Change in life philosophy	14.52±7.18	13.36±6.50
	Change in relationships with others	12.43±5.82	11.30±6.26
	Total	56.60±21.48	54.44±20.34
CPPSSS	Confidence support	53.67±12.22	
	Emotional support	46.62±10.85	
	Information support	35.86±7.80	
	Total	136.18±27.84	
CRAMQ		**There is a negative attitude (n)**	**There is not a negative attitude (n)**
Patient version	Impossibility of recovery	69	31
	Labelling of cancer patients	39	61
	Experiencing social discrimination	17	83
Community version	Impossibility of recovery	7	93
	Discrimination	3	97
	Negative attitudes related to cancer	17	83

HADS: Hospital Anxiety and Depression Scale; PTGI: Posttraumatic Growth Inventory; CPPSSS: Cancer Patient Perceived Social Support Scale; CRAMQ: Cancer-Related Attitudes Measurement Questionnaire.

have higher change in self-perception PTGI subscale points (27.80±11.46, 32.44±7.327, 35.82±7.65, respectively; p=0.015) and change in life philosophy (13.22±7.32, 14.17±7.46, 18.36±5.17, respectively; p=0.014). No correlations were determined between the PTGI points and the time since cancer diagnosis or the educational level (p>0.05). No significant difference was determined between patients with and without a psychiatric disorder before breast cancer, or between those who had and had not undergone plastic and reconstructive surgery in respect of PTGI points (p>0.05).

The correlations between the PTGI and CRAMQ of the patients are shown in Table 3. In the patient's relatives with and without a CRAMQ negative attitude, there was determined to be no effect on PTGI (p>0.05).

The effect of independent variables on PTGI was evaluated with multiple regression analysis (Table 4). Age and the PTGI levels of the patient relatives were determined to be predictive of the PTGI of the patients; as age increased so the PTGI points decreased and the PTGI levels of the patient relatives had a direct effect.

Table 2. The relationship between PTGI and clinical scales in the patient group

		PTGI Change in self-perception		PTGI Change in life philosophy		PTGI Change in relationships with others		Total	
Scales		**r***	**p***	**r***	**p***	**r***	**p***	**r***	**p***
HADS	HADS-anxiety	-0.103	0.307	-0.082	0.420	-0.239	**0.017**	-0.123	0.224
	HADS-depression	-0.080	0.428	-0.075	0.456	-0.162	0.108	-0.079	0.436
	Total	-0.092	0.365	-0.084	0.407	-0.202	**0.044**	-0.102	0.311
CPPSSS	Confidence support	0.289	**0.004**	0.233	**0.020**	0.321	**0.001**	0.349	**<0.001**
	Emotional support	0.283	**0.004**	0.233	**0.019**	0.315	**0.001**	0.319	**0.001**
	Information support	0.045	0.654	0.060	0.551	0.158	0.116	0.097	0.337
	Total	0.230	**0.021**	0.182	0.070	0.274	**0.006**	0.271	**0.006**
Relatives of patients PTGI	Change in self-perception	0.218	**0.029**	0.128	0.206	0.205	**0.041**	0.258	**0.010**
	Change in life philosophy	0.194	0.053	0.168	0.094	0.268	**0.007**	0.244	**0.014**
	Change in relationships with others	-0.009	0.930	0.011	0.913	0.171	0.089	0.085	0.402
	Total	0.161	0.110	0.130	0.198	0.250	**0.012**	0.240	**0.016**

HADS: Hospital Anxiety and Depression Scale; PTGI: Posttraumatic Growth Inventory; CPPSSS: Cancer Patient Perceived Social Support Scale; CRAMQ: Cancer-Related Attitudes Measurement Questionnaire.

Table 3. The relationship between CRAMQ and PTGI in the patient group

Stigma Scale		**PTGI Change in self-perception**		**PTGI Change in life philosophy**		**PTGI Change in relationships with others**		**Total**	
CRAMQ	**Negative attitudes**	**mean ± SS**	**p**	**mean ± SS**	**p**	**mean ± SS**	**p**	**mean ± SS**	**p**
Impossibility of recovery	Yes	31.55±9.53	0.140[1]	15.64±6.76	**0.019[2]**	13.23±5.72	**0.039[2]**	59.32±20.12	0.059[2]
	No	27.84±12.30		12.03±7.57		10.65±5.74		50.55±23.46	
Labelling of cancer patients	Yes	30.18±9.353	0.641[1]	13.97±6.58	0.546[2]	12.85±5.77	0.570[2]	56.74±18.73	0.958[2]
	No	0.55±11.31		14.87±7.57		12.16±5.89		56.51±23.22	
Experiencing social discrimination	Yes	31.00±10.82	0.858[1]	14.88±6.83	0.821[2]	10.82±5.66	0.213[2]	53.47±24.03	0.512[2]
	No	30.28±10.55		14.45±7.29		12.76±5.83		57.24±21.02	
Total	Yes	28.29±12.91	0.365[1]	13.18±8.12	0.246[2]	10.50±5.65	**0.038[2]**	50.00±25.88	0.097[2]
	No	31.22±9.44		15.04±6.77		13.18±5.75		59.17±19.10	

[1]Mann-Whitney U test; [2]T-test; PTGI: Posttraumatic Growth Inventory; CRAMQ: Cancer-Related Attitudes Measurement Questionnaire.

Table 4. Posttraumatic growth predictors in patients with breast cancer

					95% CI	
	B	**Std Error**	**Beta**	**t**	**p**	**Lower**	**Upper**
Age	**-0.499**	0.212	-0.229	-2.350	**0.021**	-0.920	-0.077
HADS	0.146	0.290	0.062	0.503	0.616	-0.431	0.722
CPPSSS	0.125	0.084	0.162	1.478	0.143	-0.043	0.292
PTGI-relatives of patients	**0.211**	0.104	0.200	2.040	**0.044**	0.006	0.417
CRAMQ– impossibility of recovery	-6.645	5.140	-0.144	-1.293	0.199	-16.850	3.560

95% confidence interval (CI); HADS: Hospital Anxiety and Depression Scale; PTGI: Posttraumatic Growth Inventory; CPPSSS: Cancer Patient Perceived Social Support Scale; CRAMQ: Cancer-Related Attitudes Measurement Questionnaire.

Additionally, the following information was obtained from the patients during the interviews. Most patients stated that, in addition to the mastectomy, they experienced hair loss, they had to wear a mask when going outside or to the hospital, they had either lost or gained weight because of the treatments received, and because of various physical changes which they felt made it evident that they were a cancer patient such as swollen arms because of lymph oedema after the operation, social life, married life, and relationships with others were negatively affected.

DISCUSSION

The aim of this study was to investigate factors related to posttraumatic growth in breast cancer. The patients were determined to have obtained approximately average points in the PTGI. The results showed an inverse relationship between patient age and posttraumatic growth, and that being employed, a high level of social support and an attitude of stigmatisation with respect to the impossibility of recovery increased posttraumatic growth. The presence of a psychiatric diagnosis and high anxiety levels showed a negative association with posttraumatic growth. Age and the PTGI level of the patient's relatives were determined to be predictive of the posttraumatic growth of patients.

Consistent with the results of similar studies, the current study results showed that as age increased, so growth after trauma decreased (25,26). The fact that young patients are more flexible, open to life changes, and perceive the cancer diagnosis as a greater life threat may have a positive effect on growth after trauma. However, there are also studies in the literature showing that there is no relationship between age and growth after trauma, or that as age increases, posttraumatic growth also increases (27,28). The increase in comorbid diseases with ageing, the loss of social support with the loss of close relationships, and difficulty in having to acquire new coping strategies can have a negative effect on growth after trauma. In contrast, increased growth together with ageing has been associated with a high coping capacity due to life experiences. The results of the current study showed that age was a predictive factor for posttraumatic growth.

Posttraumatic growth was found to be greater in patients who were employed and in those with an additional stressor. Cancer patients in part-time or full-time employment have been reported to have higher posttraumatic growth compared to patients who are not employed (29). Working, which helps to focus on various life goals, provide satisfaction, and give meaning to life, is a protective factor against stress. In addition, being occupied with work can contribute to removing negative thoughts which prevent the growth of patients. The majority of patients reported the loss of a loved one because of disease or from other causes as a stress factor. The patient group in this study was formed of women who had already lost their health and experienced organ loss. The results of the study showed greater growth after trauma in patients who were living with other losses in addition to loss of health. There is a greater possibility that those who are faced with losses have a greater probability of cognitively engaging with fundamental existential questions related to death and the meaning of life (30). The results of the current study demonstrate the need to evaluate the presence of additional stressors and the capability of patients to work, and the importance of taking steps to improve functionality.

A psychiatric disorder was seen to be present in 40% of the current study patients, and the most frequent diagnosis was depression. Depression is the psychiatric diagnosis most often seen in cancer patients and the frequency varies from 1% to 50% depending on disease stage and different diagnostic methods (31,32). Depressive symptoms diminish quality of life and have been reported to have a negative effect on posttraumatic growth. Depressive moods, negativism, and a negative outlook hinder the development of a positive attitude toward stress and impede psychological growth (9). In contrast, it has also been suggested that a low level of depressive symptoms increases posttraumatic growth, and depressive symptoms in the first stages of the disease which recover over time are a catalyst for posttraumatic growth (16). In the current study, it was determined that growth after trauma was lower in patients with a psychiatric disorder compared to those without, and anxiety symptoms affected growth after trauma negatively. Posttraumatic growth can lead to a more satisfying and meaningful life. However, growth only means being without anxiety, and being happy or feeling well do not have the same meaning. Living at a level of deeper personal, interpersonal, and mental awareness is certainly not the same thing as feeling well. A previous meta-analysis examined the effects of depression and anxiety on posttraumatic growth. It was determined that the relationship between depression and anxiety and posttraumatic growth was not highly significant, and existing findings had a weak effect and were heterogenous. The relationship of depression and decreasing posttraumatic growth was found to be stronger in cancer patients compared to those without cancer, but although not strong, it was concluded that there was a relationship between anxiety and some parameters of growth after trauma in individuals with no cancer diagnosis. Stating the need for evaluations other than of psychiatric disorders, of results representing positive functioning, the need for further studies was emphasised (33). In the results of the current study, anxiety and depression levels were not predictive of posttraumatic growth but the presence of a psychiatric disorder and anxiety symptoms were found to have a negative association with posttraumatic growth.

Social support is one of the most frequently researched concepts in this subject. It has been reported that social support has a positive effect on posttraumatic growth, increases coping abilities and reduces depressive symptoms (9,15). Seeking help and support from family and friends after a traumatic event has positive results when fulfilled. By allowing the person experiencing the trauma to express themselves, social support contributes to reducing emotional stress, increasing positive rumination, and developing effective coping styles (3). A previous study showed that with growth after the trauma of adaptation to marriage, close bonds were formed between the patient and spouse (34). The majority of the patient's relatives in the current study were the spouse of the patient, and it was determined that the level of growth after trauma of the relative was predictive of the level of growth of the patient. This finding shows the importance of support in the diagnosis and treatment process and of conducting studies aimed at developing the social support systems of the patient. In the current study, the interviews were conducted with a close relative recommended by the patient, and the fact that the majority were the spouse of the patient could have affected the results. It can be recommended or future studies that the person from whom the patient has received most support is included.

With the current increased opportunities for early diagnosis and treatment, many types of cancer have now become treatable. However, cancer is one of the diseases that is most labelled in society. It has been reported that although all dimensions of stigmatisation (isolation, social rejection, financial insecurity, internalised embarrassment) are present at a low-moderate level in different types of cancer, the level of interaction changes. Unlike other cancer types, stigmatisation in breast cancer has been reported to have a negative effect on all areas of quality of life (35). In breast cancer, invasive thoughts and self-stigmatisation have a negative effect on growth after trauma and therefore quality of life is diminished and late presentation at healthcare centres has been determined to prevent detection of the cancer at the early stage (36–38). Studies published between 2010 and 2020 which examined the effects of stigma in cancer patients were

reviewed. These studies reported that individuals from all sections of society felt stigmatisation, this was seen more in developing countries, the level of stigma could vary according to the type of cancer, and stigma could delay seeking healthcare. It has been emphasised that in breast cancer, stigma reduces as the time since diagnosis increases, and stigma can increase growth after trauma just as much as psychosocial results. However, despite the continued association of cancer with death, it has been stated that breast cancer patients try to be positive, and they play down their pain to seem positive to others (39). In the current study, posttraumatic growth, specifically in the areas of changes in life philosophy and relationships with others, was found to be greater in patients who held a negative attitude regarding the impossibility of recovery after a cancer diagnosis. A negative outlook on recovery may foster positive posttraumatic growth, potentially reflecting a more traumatic perception of the diagnosis, reduced denial, and greater acceptance of the disease. Acceptance of the reality of death may lead to deeper personal transformation, resulting in a more meaningful life and improved interpersonal relationships.

As many cancer types have now become treatable, there has also been an increase in social and systemic support aimed at cancer survivors with an increase in factors such as cancer patient support groups, rehabilitation programs, and supportive working environments. Moreover, the fact that cancer patients constitute the patient group most labelled in society must not be ignored. In particular, cancer patients with generally visible symptoms are subjected to more stigma, and attention must be paid to these symptoms. The association of the visible physical changes experienced by breast cancer patients in the treatment process and afterwards with societal gender roles is perhaps greater than in other diseases.

When the disease duration of 5 years is taken into consideration, that stigmatisation was not experienced in the areas of labelling and social discrimination by the current study patients can be attributed to the disappearance of physical symptoms and that they have overcome the exclusion and discrimination in society during that time.

The patients included in the study were those with a period of at least 6 months since diagnosis, but the disease stage was not considered. That metastatic patients were not excluded was a limitation of this study. The spread and severity of disease may have affected the parameters examined. Although patient relatives were evaluated, there was no control group. The patient's relatives interviewed were recommended by the patients. The definition of relatives was not standardised. It is possible that the patients recommended the person from whom they had received the most support and this could have affected the results. The participants' rural or urban residency was not considered. Patients from rural areas or outside the town may have declined participation due to time constraints. Multi-center studies could be beneficial for generalising our results and uncovering cultural and regional differences.

The results of this study demonstrated that age and the level of posttraumatic growth of the patient's relatives were predictive of the level of posttraumatic growth of the patient. The presence of an additional stressor other than the disease, the perception of high social support, working, and a stigmatising attitude in respect of the impossibility of recovery were determined to increase growth. A psychiatric diagnosis was present in 40% of the patients and this had a negative association with posttraumatic growth. In the diagnosis and treatment process of breast cancer, which is relatively common, understanding the living conditions of patients and a comprehensive evaluation of personal and environmental factors that affect the development of growth after trauma, is extremely important for recovery.

Ethics Committee Approval: Approval for the study was granted by the Pamukkale University Ethics Committee (60116787-020/25167, 10.04.2018).

Informed Consent: All patients and their relatives were informed about the study and gave both verbal and written informed consent prior to inclusion

Peer-review: Externally peer-reviewed.

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